

A PORTABLE DRIER FOR HERBARIUM SPECIMENS

D. J. BOTHA AND J. COETZEE

(*Department of Botany, Potchefstroom University*)

ABSTRACT

A portable oven or drier has been designed for use in the laboratory as well as in the field. Use of this oven saves time and labour and enables one to dry more collected plant specimens in a specified period.

UITTREKSEL

'N DRAAGBARE DROËR VIR HERBARIUMEKSEMPLARE

'n Draagbare droogoond is ontwerp wat in die laboratorium sowel as die veld gebruik kan word. Die gebruik van dié oond bespaar tyd en baie arbeid en maak dit moontlik om in 'n bepaalde tyd meer versamelde plante te droog.

INTRODUCTION

The efficacy of drying herbarium specimens with artificial heat cannot be doubted, although certain workers such as Fernald (1945) according to Lawrence (1963), urge caution in using high temperatures.

When collecting extensively in areas with constant high humidity it is very difficult not to lose a rather large percentage of specimens, due to fungal and bacterial degradation, when the specimens are dried without artificial heat.

A number of drying racks or ovens have been described by McClean and Storey (1930), MacDaniels (1930), Smith (1946) and Lawrence (1963), but none of these are both completely portable and completely efficient.

The drier described here (Fig. 1), has been used under widely divergent field conditions for a number of years and has proved to be very efficient. It has the advantage of being capable of field and herbarium use, depending on either electricity or bottled gas. The mass of the complete drier (except gas cylinder) is less than 13 kg.

For field work the drier folds up into an easily carried package, $58 \times 58 \times 5,5$ cm (Fig. 2), the only loose items being the gas cylinder and lamp head. To assemble takes less than 3 minutes.

Even plants, resistant to drying, are completely dry within 72 hours, whilst most specimens can be removed from the dryer within 24 hours. This relatively quick drying time, coupled with a capacity of approximately 150 specimens at any one time, allows this drier to be used on extended collecting trips.



FIG. 1.
Assembled drier, ready for use.



FIG. 2.
The folded drier is compact and portable.

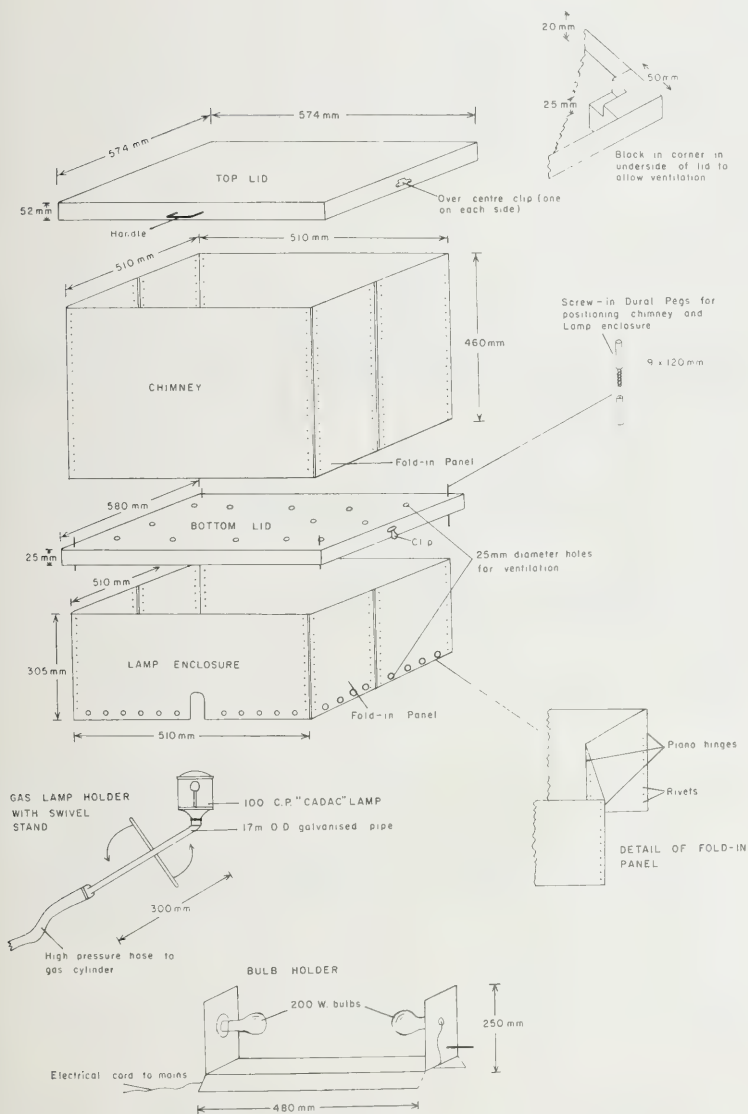


FIG. 3.
Exploded diagram, showing construction.

Liquid petroleum gas consumption is approximately 1 kg per 24 hours.

A further advantage is that presses, once packed, do not need to be opened at regular intervals for changing of blotter sheets. Most troublesome insects and mites are also killed or dispelled by the heat.

It is recommended to use corrugated aluminium sheets (450 mm $\times$ 280 mm) as ventilators instead of the usual corrugated cardboard separators in the press.

In the laboratory two 200W bulbs can be used instead of the gas lamp.

CONSTRUCTION (Fig. 3)

The drier consists of a top and bottom lid made of 2 mm aluminium sheet and a chimney and lamp enclosure made of 1,5 mm aluminium sheet.

Wooden blocks in the corners of the top lid provide enough clearance to allow efficient ventilation. No rain, however, can enter the oven and it can therefore be used out of doors.

Dural pegs in the corners of the bottom lid hold the fold-in panels of the chimney and lamp enclosure in position.

For carrying purposes all components are contained in the two lids which fit into one another and are clipped together with two standard overcentre clips.

The holder for the gas lamp is fitted with a swivel stand, enabling it to be carried in the case.

ACKNOWLEDGEMENTS

We would like to thank the instrument makers of the University for advice in designing, and eventually building this oven.

REFERENCES

- MACDANIELS, L. H., 1930. A portable plant drier for tropical climates. *Am. J. Bot.* **18**: 669-670.
- MCCLEAN, A. P. D., and STOREY, H. H., 1930. A drying cabinet for the preparation of Plant specimens for the Herbarium. *Bothalia* **3**: 137-141.
- SMITH, G. C. A., 1946. A drying cabinet for the Herbarium. *Jl S. Afr. Bot.* **12**: 43-45.
- LAWRENCE, G. H. M., 1963. *Taxonomy of vascular plants*. New York: The Macmillan Co.